

Embodiment	Key Type	Identity Element	TA Element	Session Element	General Form
<b>First</b>	Encryption "Enc"	$Q_{IDi}$ Public	$R_{TAi}$ Public	$r$ Private	$\prod t(R_{TAi}, r Q_{IDi})$
	Decryption "Dec"	$S_i$ Private $Q_{IDi}$ in $S_i$	$s_i$ in $S_i$	$U$ Public	$t(U, \sum b_i S_i)$
<b>Second</b>	Encryption "gID"	$Q_{IDi}$ Public	$P_{pubi}$ Public	$\sigma$ Private	$\prod \hat{e}(Q_{IDi}, P_{pubi})$
	Decryption "X"	$d_{IDi}$ Private $Q_{IDi}$ in $d_{IDi}$	$s_i$ in $d_{IDi}$	$U$ Public	$\hat{e}(\sum d_{IDi}, U)$
<b>Third</b>	Signature (compound)	$d_{IDi}$ Private	$P_{pubi}$ Public	$z$ Private	$h \sum d_{IDi} + z \sum P_{pubi}$
	Verification (compound)	$Q_{IDi}$ Public	$P_{pubi}, U$ Public	$U$ Public	$\prod \hat{e}(P_{pubi}, h Q_{IDi} + U)$
<b>Fourth</b>	Signature "e"	$d_{IDi}$ Private $Q_{IDi}$ in $d_{IDi}$	$s_i$ in $d_{IDi}$	$k$ Private	$\hat{e}(\sum d_{IDi}, P)$
	Verification "e"	$Q_{IDi}$ Public	$P_{pubi}$ Public	$h, S$ Public	$\prod \hat{e}(Q_{IDi}, P_{pubi})$

**Figure 3**